

(No Model.)

G. N. EINSELE.
BALANCE STAFF PROTECTOR FOR WATCHES.

No. 490,708

Patented Jan. 31, 1893.

Fig. 1.

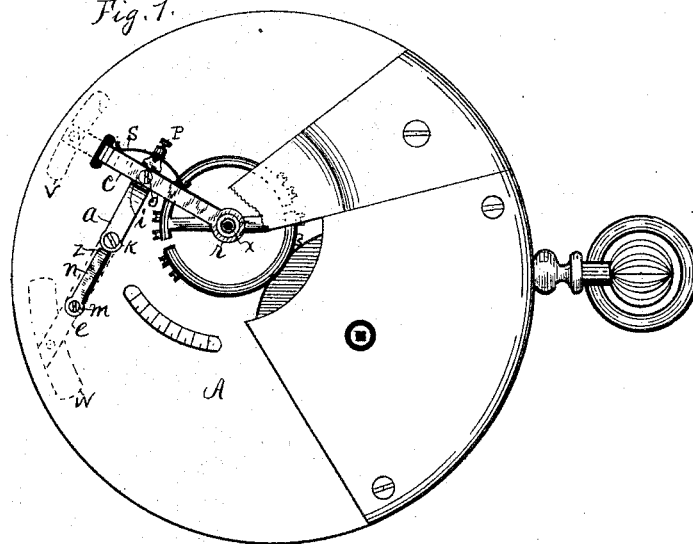


Fig. 2.

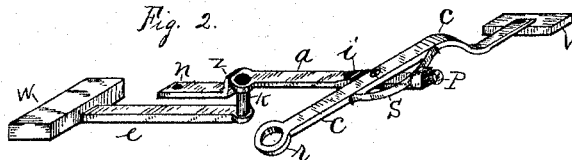


Fig. 3.

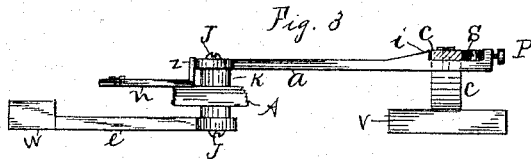
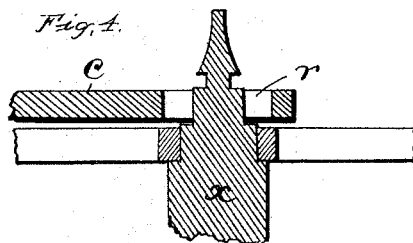


Fig. 4.



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GEORGE N. EINSELE, OF CRETE, ILLINOIS.

BALANCE-STAFF PROTECTOR FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 490,708, dated January 31, 1893.

Application filed June 20, 1892. Serial No. 437,252. (No model.)

To all whom it may concern:

Be it known that I, GEORGE N. EINSELE, a citizen of the United States of America, residing at Crete, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Balance-Staff Protectors for Watches, of which the following is a specification, reference being had therein to the accompanying drawings and the letters of reference thereon, forming a part of this specification, in which—

Figure 1 is a plan view of an ordinary watch on its side having the balance wheel, a portion of the cock plate being broken away to expose to view the end of the balance shaft and its pivot. Fig. 2 is a perspective view of the balance staff protector before being applied to a watch, and on an enlarged scale to make its construction plain. Fig. 3 is a side view of Fig. 2, the upper lever being in section, and Fig. 4, is an enlarged vertical section through the upper end of the balance staff and through the loop surrounding the upper end of the balance staff.

This invention relates to certain improvements in balance staff protectors for watches, the object being to prevent breaking or injury to the balance staff or its pivot in case the watch should fall and strike some hard object. Referring to the drawings, A represents the watch plate.

e is an arm designed to be located between the two plates of the watch, and has a weight *w* secured to its outer end. Its inner end is connected with the inner end of arm *a* located above plate A through the medium of a short shaft having square ends and passing through the bushing *k* secured in said plate, the said arms being secured on said short shaft by means of screws J. J. The arm *a* has pivoted to it near its outer end at *o*, and across said arm, the lever *c* having a loop *r* on its inner end for surrounding the balance staff *x*, but out of contact with it as shown in Fig. 1. The outer end of lever *c* is formed so as to turn downward through plate A, and has secured to its outer end the weight *v*. The arm *a* has formed on its upper side the offset or shoulder *i* adjacent to, but out of contact with the side of lever *c*, for the purpose of permitting only a slight oscillation of said lever on its pivot, by arresting it as it may turn in either

direction the distance permitted by said shoulder. A bow spring S is placed against the opposite side of said lever from said shoulder *i*, and is held in contact with said lever by means of a thumb screw P passing through a post on the outer end of arm *a* and bearing against said spring, so that more or less pressure may be given said spring and thereby hold said lever in the position shown in Fig. 1, so that its loop *r* may not be in contact with the balance staff to interfere with the movement of the watch. The inner end of said thumb screw is intended to enter a recess in the said spring, or pass through it as shown in Fig. 3 for preventing displacement of said spring.

n is a plate secured to the upper side of the watch A by means of a screw *m* passing through its outer end. The inner end of said plate is turned up at nearly right angles with the plate A and forms a spring *z* for bearing against the inner flattened end of arm *a* and holding it in proper position so as to prevent the loop *r* on arm *c* from standing in contact with the balance staff and interfere with the movement of the watch.

Should the watch fall to the floor from the position shown in Fig. 1, the momentum of weight *v* will overcome spring S and bring the loop *r* on the opposite end of said lever in contact with the balance staff *x* and thus arrest the momentum of the balance staff and the balance wheel attached to it, and thus prevent the balance staff or its pivot from being broken off. If the watch should be inverted from the position shown and then fall the same protection would be afforded the balance staff. In case it should fall on its stem or opposite its stem then the weight *w* will operate to overcome spring *z* and through the medium of arms *e* and *a* and lever *c* bring the loop *r* in contact with the balance staff so as to arrest its momentum and save it from injury the same as in the other case. The weight *w* is intended to be heavier than weight *v* and lever *c* combined so as to overbalance them in case of a fall and permit said loop to be brought in contact with the balance staff as stated.

With this device applied to a watch it matters not on which edge the watch may fall or be struck, one or the other of the weights will prevent injury to the balance staff as stated,

and the device may be applied to almost any sort of a watch.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is as follows to wit

1. The combination of the watch plate A, lever *c* having weight *v* on its outer end and loop *r* on its inner end for surrounding the balance staff, arm *e* having weight *w* on its outer end, arm *a* pivotally connected near its outer end to lever *c* and connected at its inner end with arm *e* through the medium of a short shaft passing through said plate, and having the shoulder *i* adjacent to lever *c*, bow spring S, thumb screw P and spring plate *n*, all arranged to operate substantially as and for the purpose set forth.

2. In a balance staff protector for watches

an arm or lever having a loop on one end for surrounding the balance staff, and having a weight on its outer end, and fulcrumed between its loop and weight substantially as and for the purpose set forth.

3. In a balance staff protector for watches, an arm or lever having a loop on one end for surrounding the balance staff, and a weight at its opposite end, and pivotally attached between its ends to the watch, and the means for maintaining said loop out of contact with the balance staff, and for permitting such contact in case the watch falls substantially as and for the purpose set forth.

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Witnesses:

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